



## Feature Article

### Should I Stay or Should I Go? Decision Making in the Face of Hurricanes, by Dr. Eva Regnier



The southeastern U.S., and in particular the beautiful, historic city of New Orleans, suffered devastating floods in the wake of Hurricane Katrina, which struck the area on August 29. Citizens of the U.S. as well as friends from abroad have been working to rescue the victims, and are beginning to rebuild the region; 95 countries from around the world, for example, have generously offered their assistance in this time of need. The international defense community has been prominent among those actively participating in the rescue and recovery. The Mexican Army, for example, sent a convoy with supplies, thus operating in U.S. territory for the first time in over 150 years.

Unlike the victims of the tragic tsunami last December, the region affected by Hurricane Katrina had several days' advance warning. Much of the damage Katrina caused was simply unpreventable; natural disasters have the power to wipe out human structures. The loss of life, however, could have been prevented by a more complete evacuation of the region and better preparation for taking care of the victims. This type of short-term preparation in response to the threat of an approaching hurricane is one of the areas in which we can improve our planning and allocation of resources to prevent a recurrence of this tragedy.

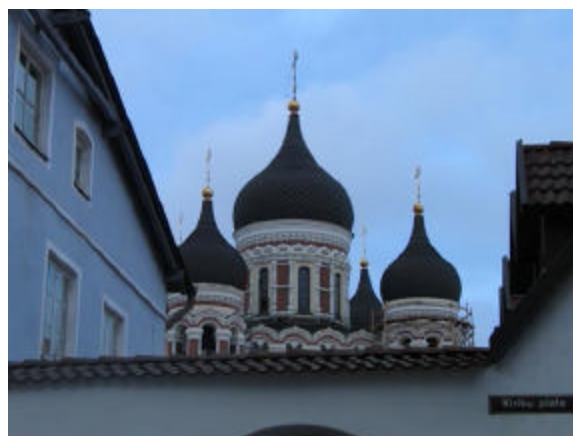
If the city of New Orleans were evacuated every time a hurricane threatens the area, however, there would be, on average, 1.5 major evacuations every year. Evacuations are of course economically costly as well as deadly; a bus fire killed 24 elderly people evacuating to escape Hurricane Rita. In addition, there is some evidence that false alarms can cause complacency. If there are many false alarms, the citizens may be (See "Hurricanes" on page 7.)

## DRMI Activities

### Mobile Courses

#### Estonia MIDMC, by Dr. John Enns

DRMI held a Mobile International Defense Management Course (MIDMC) in Tallinn, Estonia from September 5-16, 2005.



A scenic view of Estonia.

The faculty team included Dr. Jomana Amara, Dr. Robert McNab, Dr. Eva Regnier, Dr. George Satterthwaite and Dr. John Enns. Thirty-two participants attended the course representing the Estonian Defence Forces, the National Border Guard, the Defence Planning Ministry and the National Police Force. The course was held at the new Border Guard training facility outside Tallinn. Chief of Personnel for the Border Guard, Colonel Amian Koos, opened the course and gave closing remarks. The course was very timely with several of the participants engaged in real-world budget and planning reviews as those subjects were being discussed in the classroom and discussion groups.

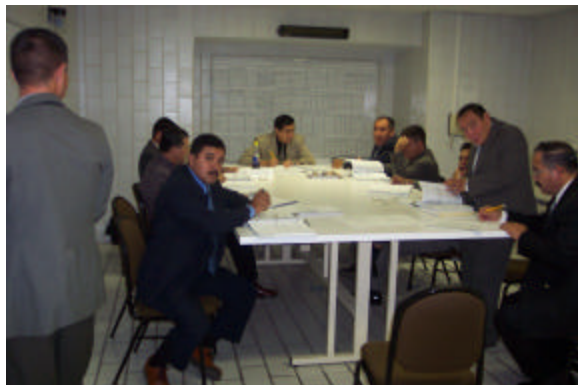
#### Malaysia FMS, by Dr. Peter Frederiksen

DRMI presented its fifth Foreign Military Sales (FMS) course (and tenth overall mobile course) during August 15-26 in Kuala Lumpur, Malaysia. The course was again taught at the Malaysian Armed Forces Defence College (MAFDC), the highest-level military education institution in Malaysia. The MAFDC Commandant, First Admiral Dato Kamal bin Darus opened and

closed the course. Captain Subramaniam bin Raman (DRMC 04-3), Chief of the Naval Directing Staff also attended opening and closing ceremonies. Captain Abd. Aziz (DRMC 03-1), Chief of Directing Staff and Deputy Director of MAFDC, attended the closing ceremony with the other members of his Directing Staff. There were 40 participants: 21 Army (1BG, 1 Col, 20 LTC), 7 Navy (all CDR), 8 Air Force (all LtCol), 2 Police (both Superintendent--LtCol equivalent) and 2 Ministry of Defence (MoD) civilians. This brings the total Malaysian participation in DRMI mobile courses to 330. The DRMI two-week course is part of the 11-month MAFDC curriculum, leading to a Master of Arts degree. DRMI is currently scheduled for a sixth FMS course at the MAFDC in August 2006. Also attending for just the two-week segment of the 11-month course was HRH BGEN Muhammad Faris (please see Participant News section).

### Mexico MIDMC, by LTC Luis Morales

DRMI presented a Mobile International Defense Management Course (MIDMC) in Mexico City, Mexico from 1-12 August 2005. This was DRMI's first mobile course to Mexico.



A group of Mexican Navy officers work on a practical exercise.

The faculty team consisted of Dr. Diana Angelis, Mr. Don Bonsper, Dr. Charles J. LaCivita, LTC Luis Morales, Dr. Eva Regnier and Mr. Larry Vaughan. Although all participants (38 total) were military officers from the Mexican Navy, there was a good mix of junior, mid-level and senior officers from different regions and functional areas within the Mexican Navy; this mixture provided for dynamic small group discussions and enhanced the exchange of views, ideas, and network building among this group of current and future military leaders.



A group of Mexican Navy officers discuss how to build a production function.

The Center for Naval Studies (CESNAV), where the course was held, had excellent facilities and the staffs of both CESNAV as well as the US Office of Defense Coordination (ODC) provided outstanding support. Capitan de Fragata (LCDR) Carlos Hugo Montiel Sanchez opened the course on behalf of the Director of CESNAV and Contralmirante (RADL) Jose Antonio Meixuiero Ramirez, Director of CESNAV closed the course. The feedback from participants to the ODC has been very positive and Mexico has already requested DRMI mobile courses for Spring 2006 and 2007.

### Resident Courses

DRMI's Senior International Defense Management Course (**SIDMC 05**), held 27 June – 22 Jul 2005 had 48 participants from 34 countries (including the US). As part of the course, participants traveled to Sacramento to hear briefings at the Capitol and enjoyed a tour of historical sites in San Francisco. The Defense Resources Management Course (**DRMC 05-4**) (25 Jul - 18 Aug 2005) had 30 participants from 11 countries (including the US) and the **DRMC 05-5** (22 Aug - 16 Sep 2005) had 37 participants from 10 countries (including the US).

The International Defense Resources Management Course (**IDMC 05-2**) began 26 September 2005. The course has 47 participants from 33 countries, including four women. Finishing 9 December, the course includes a field trip to the Washington, D.C. area. DRMI is currently conducting Mobile International Defense Management Courses (**MIDMCs**) in Argentina (19 - 29 Sept 2005) and

Canada (26 Sep - 7 Oct 2005). The details of these courses will follow in the next newsletter.

## Participant News

**LTC Remus Costan** (IDMC 02-1) reports that **COL Dumea Viorel** (SIDMC03) recently left the Regional Center for Defense Resources Management (RCDRM) in Brasov, Romania, to attend the National War College, NDU, in Washington, D.C. The new director of the center is **COL Vasile Gheorghe APOSTOL** (MIDMC 94-8), who was formerly the deputy of the Regional Training Center (RTC) NATO/PfP Bucharest. **BGEN Jan Gavrilă** (DRMC 99-2) is now the rector of The Military Technical Academy in Bucharest. LTC Costan was promoted to LTC and Chief of Planning Office and continues to teach both decision-making theory and systems analysis.

**CDR Akbar Naqi** of the Pakistan Navy (IDMC 05-1) has been selected for Captain.

## Royalty Again Attends A DRMI Course



**BGEN His Royal Highness Muhammad Faris Petra**, Crown Prince of Kelantan Sultanate, and next in line to the throne, attended DRMI's August mobile course (MIDMC 05-11) in Kuala Lumpur, Malaysia, which was led by Dr.

Peter Frederiksen. Although not attending the entire 11-month course at the Malaysian Armed Forces Defence College (as were the 40 other participants), his father, Sultan Ismail Petra, hearing about DRMI's reputation, arranged for his son to attend the two-week course.

## Curriculum Developments, Teaching News and Service

### Awards

**Philip A. Costain, Senior Lecturer** receives The Lieutenant Commander David L. Williams Outstanding Professor Award

At the NPS quarterly awards ceremony in King Hall on 13 September 2005, Philip A. Costain, Senior Lecturer accepted The Lieutenant Commander David L. Williams Outstanding Professor Award. The award is named for Lieutenant Commander David L. Williams, U.S. Navy, who was a National Security Affairs

graduate of the Naval Postgraduate School in December 1996. In August 2000, Lieutenant Commander Williams joined the Office of the Chief of Naval Operations. This outstanding young naval officer was taken from us in the terrorist attack on the Pentagon on September 11, 2001 and is honored by dedicating an award in his name for an outstanding professor.

This award is presented quarterly to the faculty member of the School of International Graduate Studies who has demonstrated the greatest dedication to the learning and intellectual growth of students, in residence and abroad, and through that dedication had the greatest impact on the individual students and the course as a whole.



Dean Robert Ord, School of International Graduate Studies, congratulates Philip Costain while his wife Marcela Franconetti and DRMI Executive Director CJ LaCivita show their support.

The citation read:

The Lieutenant Commander David L. Williams Outstanding Professor Award is presented to Senior Lecturer Philip A. Costain, Defense Resources Management Institute. Senior Lecturer Costain is one of those individuals who comes closest to being an indispensable asset. He is teacher, administrator, manager and valued colleague. His teaching, especially in the small discussion groups critical to DRMI's success, is consistently recognized by participants in our after-course critiques. His work as coordinator for academic materials literally holds together DRMI. Through his efforts, all DRMI educational materials are computer accessible, catalogued and up-to-date. He also contributes to long-term curriculum development as a member of the faculty group responsible for all quantitative reasoning modules. He keeps our mobile

teaching teams on track with his painstaking attention to the translation of our materials. Phil is "the extra member" of every mobile team. His sustained dedication to DRMI has contributed much to the intellectual growth of all our participants, both in the United States and worldwide.

**Dr. Natalie Webb** receives The Navy Superior Civilian Service Award

On 11 August 2005, NPS President Patrick W. Dunne, RDML, presented Dr. Natalie Webb with the Navy Superior Civilian Service Award. The Navy Superior Civilian Service Award is the highest honorary award that the Navy can confer on a civilian command employee. It is granted only to those employees who have distinguished themselves through contributions of major significance and / or extraordinary service to the Navy.



NPS President Rear Admiral Dunne, RDML presenting the award to Dr. Webb.

The citation read:

For superior civilian service as demonstrated by your exemplary performance, outstanding achievements and significant contributions to the mission of the Naval Postgraduate School (NPS) from July 2003 to June 2005. Over the last two years, you helped develop and deliver executive education courses, and led efforts to coordinate the efforts of the Navy's Executive Learning Officer (ELO) and NPS. Your knowledge, experience, persistence and leadership have

greatly benefited the Executive Business Course (EBC) and the Navy Corporate Business Course (NCBC). The many senior Department of the Navy executives who have attended EBCs and NCBCs have used the results of your efforts to improve the effectiveness and efficiency of the Department of the Navy. You have played a critical role in creating high-quality programs that help the DoD/DoN executives to understand emerging strategic and policy issues. The programs combine defense decision makers, industry decision makers, and members of the academic community in a forum of discussion in which learning results. These programs play a vital role in providing value-added tools and skills to senior defense leaders. Your outstanding contribution to the successful accomplishment of our mission reflects great credit upon you and the Naval Postgraduate School and is in keeping with the highest tradition of service to the United States Navy.

### Teaching

Dr. Natalie Webb presented a four-hour workshop on business planning at the Navy Corporate Business Course held at NPS, August 2-10, 2005.

Dr. Natalie Webb also presented a four-hour workshop on performance planning in government at the Military Sealift Command's Executive Business Course, held at the Navy Yard in Washington, DC September 19-23, 2005. Dr. Webb and Mr. Paul Stames of The Center for Executive Education at NPS, developed the course at the request of Vice Admiral David Brewer, USN.

### Service

**Dr. Robert McNab** testified before the US House of Representatives' Committee on Rules, Subcommittee on the Legislative and Budget Process on 27 July 2005. The focus of his testimony was on the comparative study of international multi-year budgeting. For more information and a transcript of the testimony, please see the following web address:

[http://www.rules.house.gov/legbudg/hearings/multiyearbudg/109\\_lpb\\_multiyearbudgeting\\_transcript.htm](http://www.rules.house.gov/legbudg/hearings/multiyearbudg/109_lpb_multiyearbudgeting_transcript.htm).

## Four New DRMI Courses

DRMI is currently developing four new courses for international participants; they will first be offered late in FY2006. Descriptions of the courses as well as the names of those involved in their development follow.

### **Budget Preparation, Execution and Accountability**

**Team members:** Dr. Natalie Webb, lead, Dr. Diana Angelis, LTC Luis Morales, Dr. Robert McNab, LtCol Christopher Page and Mr. Donald Bonsper.

This course examines the preparation, execution and accountability of defense budgets. We provide the foundation for preparing and executing the budget by discussing the overall budget process beginning with planning and programming. Planning and programming are the stages where policy formulation and allocation of resources support national priorities, goals and objectives. This course reviews these concepts, and then illustrates how to take the programming decisions from the Ministry of Defense (MOD) through the budget cycle. We begin with a section on budget preparation using MOD programming guidance, integrating programs with budget guidance to create a budget. We then provide information, tools and techniques, and exercises on estimating budget submissions, funds control, performance management and feedback, all components of preparing, executing, and providing accountability for defense budgets.

Completing the International Defense Management Course (IDMC) before this course is highly desirable, but not required.

### **Base Closure and Economic Redevelopment**

**Team members:** Dr. Robert McNab, lead, Dr. Jomana Amara, Mr. Donald Bonsper, and Dr. Alan Laverson.

This course focuses on the use of analytical methods in selecting military facilities for expansion, closure, and realignment of military bases and facilities as well as the economic redevelopment of former military facilities. In the first part of the course, we will examine the concepts and application of strategic planning and the linkages between strategic plans,

military capabilities and program budgets. In the second part of the course, we will discuss analytic tools and methods for the establishment of criteria to select military facilities for expansion, realignment, or closure. In the third part of the course, we will explore the issues related to economic redevelopment of facilities selected for realignment or closure.

### **Streamlining Government through Outsourcing and Privatization**

**Team members:** Dr. Francois Melese, lead, Dr. Jim Airola, CDR Ron Hughes, Dr. Alan Laverson and Dr. Anke Richter

The aim of this new course is for participants to be able to apply economic and management theory and the many lessons learned by governments around the world, to structure concrete policy recommendations for their own countries. This new course has three primary objectives:

- i. To provide a forum for the exchange of ideas to improve the management and support of defense operations.
- ii. To review economic and management theory and lessons learned from privatization and outsourcing as they relate to governments' make-or-buy decisions.
- iii. To provide international participants an analytical approach to effectively plan, implement, and monitor privatization and outsourcing initiatives.

### **Financial Integrity, Accountability and Transparency**

**Team members:** Dr. Diana Angelis, lead, Dr. Jim Airola, Dr. Jomana Amara and Dr. Natalie Webb

This course explores how the principles of good governance and the concepts of financial integrity, accountability and transparency can reduce the negative impact of corruption in government. The course will introduce students to basic management and economic concepts that are useful for understanding how corruption reduces government effectiveness and efficiency. The definition and measurement of corruption as well as its effect on the national economy will be presented. Tools and techniques for enhancing transparency and accountability will be discussed, including

budgeting processes, accounting principles and financial management systems. Principles of good governance and issues related to external aid and non-government organizations will be explored and the concept of integrity will be discussed from the financial and personal perspective. Case studies and open discussions will give students the opportunity to explore these subjects in further detail.

## Staff and Faculty News



**Ron Hughes**, Commander, U.S. Navy, joined the DRMI faculty in late April 2005 and brings a wealth of recent operational experience to the school. After earning his BS degree in Chemical Engineering from the University of Missouri (1986), CDR Hughes entered the Navy through NROTC and received his Naval Flight Officer Wings 1987. Throughout his distinguished career, he has served in various squadron and staff positions throughout the world. Additionally, he has made numerous extended deployments and participated in several combat operations. CDR Hughes joins us from his most recent assignment as the Strike Operations Officer aboard the USS ABRAHAM LINCOLN (CVN-72) participating in Operation IRAQI FREEDOM and Tsunami Relief operations in Indonesia. Additional educational experience includes a Masters of Engineering Management degree from the University of Colorado (2002) and completion of his Joint Professional Military Education (JPME) phase I through correspondence with the Air Command and Staff College. His personal awards include the Defense Meritorious Service Medal, three Meritorious Service Medals and two Air Medals. We welcome Ron, his wife, Annette, and his three sons to the DRMI team.



**Christopher Page**, LtCol., U.S. Marine Corps, joined the DRMI faculty in August of 2005 after completing an assignment with the Marine Corps Systems Command, Quantico, VA where he worked for R&D and Procurement accounts as an acquisition program/financial analyst. He received his Bachelor of Science Degree in Commerce Engineering from Drexel University (1989) and his Master of Science in Financial Management/Defense Analysis from the Naval

Postgraduate School (2002). He is also a graduate of the Marine Corps Command and Staff College and the Professional Military Comptroller School at Maxwell AFB, AL (1996). He has served tours as an Executive Officer, Commanding Officer, and Comptroller as well as a variety of other Staff billets in various Marine units and the Joint arena. He is defense acquisition level two certified in Business Cost Finance and Program Management and is a member of the Acquisition Professional Community (APC) and the American Military Society of Comptrollers (ASMC). In addition, he currently teaches the Marine Corps Practical Comptroller Course in Monterey, CA. He is married, has two children and resides in Pacific Grove, CA.



**Elliott Mitchell Jr.** joined the DRMI staff on 26 September, as a student intern. He is presently attending Monterey Peninsula College (MPC). DRMI warmly welcomes Elliott aboard.

## Conference Presentations, Research and Publications

### Presentations

**Dr. Francois Melese** was invited to speak and lead discussions on Public-Private Partnerships (PPP) at the annual NATO Defense Economics meetings at the Marshall Center in Garmisch, Germany (12-15 Sept). Participants included several NPS and DRMI alumni among the 110 delegates from Partnership for Peace, Mediterranean Dialogue, NATO member countries, and representatives from the East Caucuses. Among the many Ambassadors, Deputy Ministers, etc., the keynote speaker was the Deputy Minister of Defense of the Russian Federation. Minister Kudelina generously invited Francois as a representative of the United States to join her on a special tour of the Marshall Center. Results of the NATO discussions have been incorporated into a new one-week course that DRMI will be offering tentatively titled "Privatization and Outsourcing."

**Dr. Eva Regnier** presented an invited talk entitled "Marginal analysis of multi-objective decision methods in the public sector" at the triennial meeting of the International Federation of Operational Research Societies in Honolulu, Hawaii July 11. She reviewed the variety of

methods that are used to make multi-objective decisions in the public sector, with examples from health, defense, and environmental protection. Each has different implications for the marginal trade-offs among costs and benefits/objectives. This study explored the policy implications within a hierarchical budget allocation process are showed inconsistencies that can arise when more than one method is used.

Dr. Regnier also gave a presentation entitled "Input Price Dynamics and Sustainability" to executives at the Interface Research Corporation in Atlanta, Georgia on June 23.

**Dr. Anke Richter** presented a guest lecture on May 6, 2005 entitled "Case Studies from Health Economics" for Course 475, Technology Assessment and Regulation of Medical Devices in the Department of Management Science and Engineering at Stanford University in Palo Alto, CA.

Dr. Richter also presented an invited talk entitled "Perils and Pitfalls with VTC Courses" at the triennial meeting of the International Federation of Operational Research Societies (IFORS) conference in Honolulu, HI, July 11-15, 2005.

Dr. Richter was also invited to speak at the conference "From Cholera to Smallpox and Beyond: Mathematical Modeling for 21st Century Public Health Practice" in Palm Springs, CA, March 9-10, 2005. Her presentation was entitled "Policy Questions: Finding Models to Answer Them." At this same conference, Dr. Richter served as the moderator for the following two sessions: Applied Modeling Methodology, as well as Determining Data Needs Before, During and After an Event. Dr. Richter also served as one of the conference organizers.

In early April, **Dr. Natalie Webb** presented information on NPS executive education in business and the DRMI curriculum to approximately 45 attendees at the Coast Guard Pacific Area Flag Officers' Conference at NPS.

### New Working Paper Series

DRMI recently began a working paper series that features the faculty's research, which will be submitted to recognized peer-reviewed or professional journals. The series is intended to convey the preliminary results of their ongoing

research. While the research described in the series has not undergone the usual review process for Institute publications, it provides an opportunity to solicit outside comments and criticism. For more information and to see their current research interests, please see <http://www.nps.navy.mil/drmi/workingpapers.htm>

### Hurricanes (Continued from Page 1.)

less likely to comply with a future evacuation order. The decision of whether and when to evacuate is therefore both critical and difficult.

I have been studying hurricanes and the decision when to evacuate people or mobile assets, such as ships and aircraft, from a threatened region. Together with Associate Professor Patrick Harr from the NPS Department of Meteorology, we have built a model of hurricane motion based on 50 years of historical hurricane tracks. This model includes probabilistic information that allows for a dynamic optimization of decisions to undertake evacuations or other short-term protective actions in the face of an approaching hurricane.

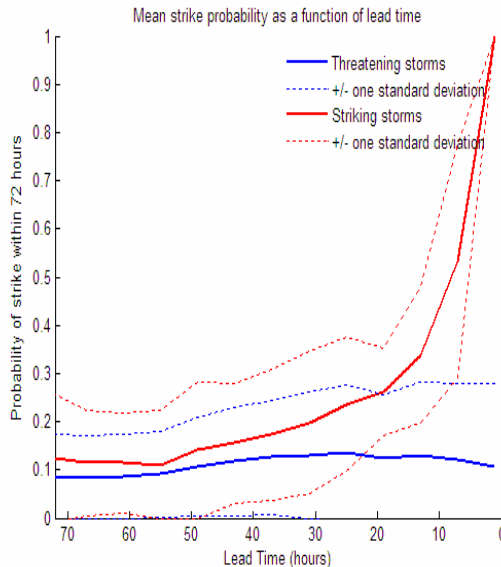
The figure below shows strike probability for New Orleans, calculated using our model, as a function of lead time, for historic hurricanes that threatened New Orleans. Until just 30 hours before the storm strikes, it is impossible to distinguish striking storms from threatening storms that never reach New Orleans on the basis of strike probabilities. Unfortunately, completing an evacuation of a major city can take 72 hours.

Although meteorologists are constantly improving hurricane forecasts, higher forecasting accuracy will not bridge this gap in the short term, if ever. The best solution is to improve decision-making in the face of uncertainty by developing both staged preparations and the means to complete evacuations in 30 hours.

In a paper currently under review by the journal *Weather and Forecasting*, we describe the hurricane model. The paper, titled "A Dynamic Decision Model Applied to Hurricane Landfall," shows that by taking into account not only the instantaneous probability that a threatening hurricane will strike, but also anticipated improvements in forecast accuracy over the next 6 to 24 hours, a decision-maker can yield

savings comparable to having forecasts 6 to 12 hours earlier. My future research in this area will include developing useful predictions of the improving accuracy of forecasts to aid in real-time evacuation decisions.

For additional information on any of our resident courses please contact Mary Cabanilla at (831) 656-2104 or e-mail [DrmiAdmin@nps.navy.mil](mailto:DrmiAdmin@nps.navy.mil)



The Defense Resources Management Institute publishes the DRMI Newsletter quarterly. Questions regarding content or the submission of proposed articles should be directed to the Newsletter Editor, DRMI 64We, 699 Dyer Rd, Monterey, CA 93943.

## DRMI Course Catalog and Brochure

The 2006 course catalog and the Defense Resources Management Course brochure is now available. If you would like copies, please contact the Admin Office at 831-656-2104 (DSN 756) or send e-mail to [DrmiAdmin@nps.navy.mil](mailto:DrmiAdmin@nps.navy.mil)

## Future Resident Courses

### Defense Resources Management Course (four-week DRMC):

DRMC 06-1	9 Jan - 3 Feb 2006
DRMC 06-2	6 Feb - 19 Apr 2006
DRMC 06-3	22 May - 16 Jun 2006
DRMC 06-4	24 Jul - 17 Aug 2006
DRMC 06-5	21 Aug - 15 Sep 2006

Please contact Mary Cabanilla at (831) 656-2104 or [DrmiAdmin@nps.navy.mil](mailto:DrmiAdmin@nps.navy.mil) for quota and enrollment information.

### International Defense Management Course (eleven-week IDMC):

IDMC 06-1	6 Feb - 19 Apr 2006
IDMC 06-2	25 Sep - 8 Dec 2006